Abstract ID : 635

Title : Behavior of eastern tropical Pacific dolphins relative to sets made by the tuna purse seine fishery

Category : Behavior

Student : Not Applicable

Preferred Format : Oral Presentation

Abstract : It is conventional wisdom that dolphins in the eastern tropical Pacific Ocean (ETP) have learned various behaviors from their experience with the yellowfin tuna purse-seine fishery. The behavior of six stocks of four species of ETP dolphins was analyzed relative to the number of sets made. Behavioral data was collected for 1,542 sightings of pure and mixed schools during ETP research cruises from 1998 to 2000. The relative frequency of occurrence of five field behaviors was significantly different ($p < 0.0005$) among stocks. Coastal spotted dolphins are very likely to bow ride while striped and western-southern offshore spotted dolphins are more likely to exhibit school splitting and low swimming behaviors. Western-southern offshore spotted dolphins were also the most likely to run. Using a Principal Components Analysis (PCA), we defined a "reaction index" (RI) based on the same five discrete behaviors. The PCA identified a major principal component that accounted for 35-59% (depending on stock) of the variance in the behavioral data. For all stocks, this first component was a contrast between behaviors indicating positive reactions to the vessel (approach and bow ride) and negative reactions (run, split, and low-swim). Using a logistic model, we found that the number of sets was a significant predictor of the RI for mixed schools of northeastern offshore spotted, mixed schools of eastern spinner, and pure schools of short-beak common dolphins (the stocks most frequently set on by the tuna purse seine fishery). No significant correlation was found for the remaining stocks, which experience less involvement with the fishery. Because targeted species have a greater tendency to exhibit behaviors associated with ship avoidance and evasion, these findings suggest a causal link between the behavior of pelagic dolphins and the number of purse seine sets they may have experienced.